

Claims

Claims 1-21 (canceled).

Claim 22 (new) A method suitable for church organ flue pipes' sound synthesis which consists in:

generating a first sinusoidal sequence (16),

generating a second sinusoidal sequence (17) whose frequency is a multiple of said first sinusoidal sequence's frequency,

generating a harmonic sequence (10) by means of processing said sinusoidal sequences,

generating a periodic sequence (RATE) whose frequency is proportional to said harmonic sequence's frequency,

generating an aleatory sequence (NOISE) whose slope is controlled by said periodic sequence (RATE),

processing said harmonic sequence (10) and said aleatory sequence( NOISE) by means of a closed loop of linear functional blocks to obtain an output sequence (13) which represents the sound of church organ flue pipes.

Claim 23 (new) A method as described in claim 22, wherein said generation of a harmonic sequence step includes processing said sinusoidal sequences (16 and 17) y means of non-linear transformations and envelope generators (20a and 20b).

Claim 24 (new) A method as described in claim 22, wherein said generation of a harmonic sequence step includes the generation of an aleatory signal (RNDPITCH) which is used to

modify the wavelength of said harmonic sequence with an oftenness which is proportional to said sinusoidal sequences' frequency.

Claim 25 (new) A method as described in claim 22, wherein said generation of an aleatory sequence (NOISE) step includes generating a random sequence, processing said random sequence by means of a loop containing delay lines and a rate limiter, and processing said rate limiter's output to obtain said aleatory sequence (NOISE).

Claim 26 (new) A method as described in claim 22, wherein said generation of an aleatory sequence (NOISE) step includes generating a random sequence and processing said random sequence by means of a loop containing delay lines and a rate limiter, being said rate limiter controlled by said periodic sequence (RATE).

Claim 27 (new) A method as described in claim 22, wherein said harmonic sequence and aleatory sequence processing step through a linear resonator consists in supplying said harmonic sequence and aleatory sequence into a closed loop composed by a delay line and linear filters, and extracting from said closed loop a sequence which represents the church organ flue pipes' synthesized sound.

Claim 28 (new) An electronic device for church organ flue pipes' sound synthesis comprising:

a harmonic component generator (9) to synthesize a main harmonic sequence (10),  
a signal generator to synthesize a periodic sequence (RATE),  
a noise generator (11) to synthesize an aleatory sequence whose slope is limited accordingly to the time progression of said periodic sequence (RATE).

a linear resonator (12) generating the sequence (13) representing the sound of church organ flue pipes synthesized by said electronic device.

Claim 29 (new) An electronic device as described in claim 28, said harmonic component generator (9) including two sinusoidal generators,

two non-linear functional blocks whose inputs are connected to said sinusoidal generators' outputs,

two independent envelope generators, which are connected to said non-linear functional blocks' outputs.

Claim 30 (new) An electronic device as described in claim 28, said harmonic component generator (9) including:

a sinusoidal generator,

a generator (34) which produces an aleatory sequence (RNDPITCH) whose samples change their random value with an oftenness which is proportional to said sinusoidal generator frequency,

wherein said sinusoidal generator's frequency is modulated by said aleatory sequence (RNDPITCH).

Claim 31 (new) An electronic device as described in claim 28, said noise generator (11) including:

a random sequence generator,

a closed loop containing a rate limiter, wherein said closed loop is connected to said random sequence generator, and said rate limiter is connected to said signal generator to synthesize a periodic sequence (RATE).

Claim 32 (new) An electronic device as described in claim 28, said linear resonator including:

a delay line and linear filters forming a closed loop,  
an input node connected to said harmonic component generator (9) and an input node connected to said noise generator (11),  
an output node where said sequence (13) representing the sound of church organ flue pipes is generated.